



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

50

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,629	12/28/2000	Yuanlong Wang	00CXT0785N	7116
53276	7590	06/24/2005	EXAMINER	
SETTER OLLILA LLC 2060 BROADWAY SUITE 300 BOULDER, CO 80302			HUYNH, KIM T	
			ART UNIT	PAPER NUMBER
			2112	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,629

Applicant(s)

WANG ET AL.

Examiner

Kim T. Huynh

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/13/05.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 21-22, 24, 26-34, 36-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Hughes et al. (US Patent 6,747,971)

As per claim 21, Hughes discloses communication circuitry comprising:

- A processing circuitry (fig.3, 305 ie switch fabric) configured to receive a communication from a communication link; (col.5, lines 40-55, ie ports 304a-n send network traffic to the switch fabric 305)
- A plurality of crossbar integrated circuits; (fig.3, 309a-n ie switch planes)
- A plurality of parallel channels between the processing circuitry and each crossbar integrated circuit of the plurality of crossbar integrated circuits, with the plurality of parallel channels of a particular crossbar integrated circuit being configured to transfer the communication (col.5, lines 40-55, parallel links between ingress ports 304a-n and the switch switching planes 309 as illustrated by figure 3) and a clock signal in parallel to the

particular crossbar integrated circuit. (col.5, line 40-col.7, line 15 ie the request controller constructs a switch frame 315 a-h that is sent to each switch planes 309 on each clock tick)

As per claim 31, Hughes discloses a method of operating communication circuitry, the method comprising:

- Receiving a communication in a processing circuitry from a communication link; (col.5, lines 40-55, ie ports 304a-n send network traffic to the switch fabric 305)
- Transferring the communication and a clock signal in parallel over a plurality of parallel channels to a particular crossbar integrated circuitry of a plurality of crossbar integrated circuits; (col.5, line 40-col.7, line 15 ie the request controller constructs a switch frame 315 a-h that is sent to each switch planes 309 on each clock tick)
- Switching the communication in the particular crossbar integrated circuit based on the clock signal. (col.5, line 40-col.7, line 15 ie switch planes 309 in a crossbar arrangement which means there is a channel between every switch plane input and every switch plane output, the request controller 314 constructs a switch frame that is sent to each switch plane on each clock tick.)

As per claims 22,32, Hughes discloses wherein the parallel channels are each comprised of parallel differential signal pairs wherein one of the differential signal

pairs is for the clock signal. (col.6, line 64-col.7, line 15, ie directing incoming traffic inputs to outcoming outputs)

As per claims 24,34, Hughes discloses wherein the communications comprise data packets. (col.5, 30-40 ie ATM cells)

As per claims 26, 36, Hughes discloses wherein the communication circuitry comprises a switch fabric. (fig3, 305, ie switch fabric)

As per claims 27, 37, Hughes discloses wherein the processing circuitry is comprised of virtual output queues(fig.3, 312a-n , ie unicast queues) that store the communications prior to switching and that are associated with egress ports. (col.5, lines 56-67)

As per claims 28, 38, Hughes discloses wherein the processing circuitry is comprised of virtual output queues that store the communications prior to switching and wherein each virtual output queue is comprised of sub-queues that are each associated with a different priority. (col.2, line 64-col.3, line 15, ie scheduling processing)

As per claims 29, 39, Hughes discloses wherein the processing circuitry is comprised of a multi-cast virtual output queue(fig.3, 313, ie multicast queue) that stores the communications prior to switching for multi-cast output. (col.6, lines 10-26)

As per claims 30, 40, Hughes discloses wherein the parallel channels include multiplexers to perform bit slicing through the crossbar integrated circuits. (col.5, lines 48-55 ie crossbar arrangement discloses multiplexers)

As per claim 33, Hughes discloses wherein transferring the communication and the clock signal in parallel over the plurality of parallel channels comprises transferring the communication and the clock signal over parallel differential signal pairs wherein one of the differential signal pairs is for the clock signal. (col.5, line 40-col.7, line 15 ie switch planes 309 in a crossbar arrangement which means there is a channel between every switch plane input and every switch plane output, the request controller 314 constructs a switch frame that is sent to each switch plane on each clock tick.)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al. (US Patent 6,747,971) in view of Applicant Admitted Prior Art (AAPA)

Hughes discloses all the limitations as above except wherein the communication links comprise serial channels. However, AAPA already discloses crossbar includes cross-points that switch between incoming serial channels. (pages 3-5)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate AAPA's teaching into Hughes's

system with the same purpose of configuring the channels to transfer data between high speed communication devices.(paragraph [0014]

5. Claims 25, 35, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al. (US Patent 6,747,971) in view Aybay (US Patent 6,185,221)

Hughes discloses all the limitations as above except the communications comprises fixed length data packets. However, Aybay discloses the variable-length packets are segmented into fixed-length switching cells to enable orderly and efficient transfer of packets through the crossbar. (col.7, lines 59-67)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Aybay's teaching into Hughes's system so as to limit the number of inputs and complexity of sending requests to a scheduler, while maintaining fair and efficient scheduling and providing QoS functionality. (col.3, lines 20-25)

### ***Response to Amendment***

6. Applicant's argument filed on 4/13/05 have been fully considered but are moot in view of the new ground(s) of rejection.

a. In response to applicant argument that Hughes does not disclose transferring a communication and a clock signal in parallel over a plurality of parallel channels to a particular crossbar integrated circuit of a plurality of crossbar integrated circuits.

Examiner respectfully disagrees. As Hughes notes at col.5, line 40-col.7, line 15, discloses switch planes 309 in a crossbar arrangement which means there is a channel

between every switch plane input and every switch plane output, the request controller 314 constructs a switch frame from a specific service request that is sent to each switch plane on each clock tick. Each switch frame contains service requests for selected cells queued in the ingress ports and each ingress port is communicatively coupled to particular switch planes and each switch planes response to specific service request on each clock tick. This implies that a switch plane is transferred in parallel with a clock signal to a particular switch plane. Thus, the prior art teaches the invention as claimed and the amended claims do not distinguish over the prior art as applied.

### ***Conclusion***

**7. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**8.** *Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571)272-3635 or via e-mail addressed to [kim.huynh3@uspto.gov]. The examiner can normally be reached on M-F 9:00AM- 6:00PM. If attempts to*




Art Unit: 2112

*reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached at (571)272-3632 or via e-mail addressed to [mark.Rinehart@uspto.gov].*

*The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9306 for regular communications and After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-2100.*

Kim Huynh

June 16, 2005



REHANA PERVEEN  
PRIMARY EXAMINER  
6/21/05